

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

**LISTING OF CLAIMS:**

1. (Cancelled)
- 1<sup>1/2</sup> 12. (Currently amended) The metallic seal according to claim 1 <sup>13</sup>~~11~~, wherein said first and second directions of said first and second sealing surfaces are arranged substantially parallel to said center longitudinal axis.
- 1<sup>1/2</sup> 13. (Currently amended) The metallic seal according to claim 1 <sup>14</sup>~~11~~, wherein said first and second directions of said first and second sealing surfaces are arranged to face substantially radially relative to said center longitudinal axis.
- 1<sup>1/2</sup> 14. (Currently amended) A metallic seal comprising:  
a first annular end section having a first annular sealing surface facing in a first direction and lying in a first contact plane to contact a first member for creating a first annular sealing dam therebetween, said first annular sealing surface being formed on a convexly curved surface;  
a second annular end section having a second annular sealing surface facing in a second direction that is opposite to said first direction, and lying in a second contact plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween, said second annular sealing surface being formed on a convexly curved surface; and  
an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said annular center section being frustoconically shaped with said first and second annular end sections being contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform said metallic seal due to torsional stress of said metallic seal, said first and second annular end sections and said annular center section being arranged to form an S-shaped cross sectional profile,

said first and second sealing surfaces being spaced apart by a first distance measured parallel to said center longitudinal axis that is substantially equal to a second distance measured perpendicular to said center longitudinal axis between said first and second sealing surfaces.

5. (Cancelled).

~~5/6~~ (Currently amended) The A metallic seal according to claim 1, wherein comprising:

a first annular end section having a first annular sealing surface facing in a first direction and lying in a first contact plane to contact a first member for creating a first annular sealing dam therebetween, said first annular sealing surface being formed on a convexly curved surface;

a second annular end section having a second annular sealing surface facing in a second direction that is opposite to said first direction, and lying in a second contact plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween, said second annular sealing surface being formed on a convexly curved surface, each of said convexly curved surfaces extend extending through an arc of about 60°; and

an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said annular center section being frustoconically shaped with said first and second annular end sections being contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform said metallic seal due to torsional stress of said metallic seal, said first and second annular end sections and said annular center section being arranged to form an S-shaped cross sectional profile.

~~3/4~~ (Original) The metallic seal according to claim ~~1~~ <sup>2</sup>, wherein said annular center section has a slope of about 45° with respect to said center longitudinal axis.

8. (Currently Amended) A metallic seal comprising:

a first annular end section having a first annular sealing surface facing in a first axial direction and lying in a first contact plane to contact a first member for creating a first annular sealing dam therebetween, said first annular sealing surface being formed on a first convexly curved surface at a location that is spaced from a first free end of said first annular end section;

a second annular end section having a second annular sealing surface facing in a second axial direction that is opposite to said first axial direction, and lying in a second contact plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween, said second annular sealing surface being formed on a second convexly curved surface at a location that is spaced from a second free end of said second annular end section; and

an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said annular center section being frustoconically shaped with said first and second annular end sections being contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform said metallic seal due to torsional stress of said metallic seal, said first and second annular end sections and said annular center section being arranged to form an S-shaped cross sectional profile with said first and second annular sealing surfaces being located closer to midpoints of said first and second convexly curved surfaces than to said opposite ends of said annular center section and said first and second free ends, respectively,

said first and second sealing surfaces being spaced apart by a first distance measured parallel to said center longitudinal axis that is substantially equal to a second distance measured perpendicular to said center longitudinal axis between said first and second sealing surfaces, said first and second contact planes of said first and second sealing surfaces being arranged substantially perpendicular to said center longitudinal axis.

9. (Currently Amended) A metallic seal comprising:

a first annular end section having a first annular sealing surface facing in a first radial direction and lying in a first contact plane to contact a first member for creating a first annular sealing dam therebetween, said first annular sealing surface being formed on a first

convexly curved surface at a location that is spaced from a first free end of said first annular end section;

a second annular end section having a second annular sealing surface facing in a second radial direction that is opposite to said first direction, and lying in a second contact plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween, said second annular sealing surface being formed on a second convexly curved surface at a location that is spaced from a second free end of said second annular end section, each of said first and second convexly curved surfaces extending through an arc of about 60°; and

an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said annular center section being frustoconically shaped with said first and second annular end sections being contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform said metallic seal due to torsional stress of said metallic seal, said first and second annular end sections and said annular center section being arranged to form an S-shaped cross sectional profile with said first and second annular sealing surfaces being located closer to midpoints of said first and second convexly curved surfaces than to said opposite ends of said annular center section and said first and second free ends, respectively,

said first and second contact planes of said first and second sealing surfaces being arranged substantially parallel to said center longitudinal axis.

10. (Original) The metallic seal according to claim 7, wherein

said first and second sealing surfaces are spaced apart by a first distance measured parallel to said center longitudinal axis that is substantially equal to a second distance measured perpendicular to said center longitudinal axis between said first and second sealing surfaces.

11. (Currently amended) ~~The A metallic seal according to claim 1, wherein~~  
comprising:

a first annular end section having a first annular sealing surface facing in a first direction and lying in a first contact plane to contact a first member for creating a first

annular sealing dam therebetween, said first annular sealing surface being formed on a convexly curved surface;

a second annular end section having a second annular sealing surface facing in a second direction that is opposite to said first direction, and lying in a second contact plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween, said second annular sealing surface being formed on a convexly curved surface; and

an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said annular center section has having a slope of about 45° with respect to said center longitudinal axis, said annular center section being frustoconically shaped with said first and second annular end sections being contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform said metallic seal due to torsional stress of said metallic seal, said first and second annular end sections and said annular center section being arranged to form an S-shaped cross sectional profile.

12. (Currently Amended) The metallic seal according to claim 1, wherein said seal is formed of a corrosion resistant alloy.

13. (Currently Amended) The metallic seal according to claim 1, wherein said seal is formed of a material selected from the group of nickel based alloys, copper based alloys, tin, aluminum based alloys and stainless steel.

14. (Currently Amended) The metallic seal according to claim 1, wherein said first and second annular end sections have substantially identical cross sectional profiles that are inverted.

15. (Cancelled).

16. (Previously presented) The metallic seal according to claim 2, wherein said convexly curved surfaces extend from a free end of said seal to said annular center section.

17. (Original) The metallic seal according to claim 5, wherein said annular center section has a slope of about 45° with respect to said center longitudinal axis.

18. (Cancelled)

19. (Previously presented) The metallic seal according to claim 6, wherein said annular center section has a straight cross-sectional profile.

20. (Cancelled)

21. (Currently amended) The A metallic seal according to claim 20, wherein comprising:

a first annular end section having a first annular sealing surface facing in a first direction and lying in a first contact plane to contact a first member for creating a first annular sealing dam therebetween, said first annular sealing surface being formed on a first convexly curved surface at a location that is spaced from a first free end of said first annular end section;

a second annular end section having a second annular sealing surface facing in a second direction that is opposite to said first direction, and lying in a second contact plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween, said second annular sealing surface being formed on a second convexly curved surface at a location that is spaced from a second free end of said second annular end section, each of said first and second convexly curved surfaces extends extending through an arc of about 60°; and

an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said annular center section being frustoconically shaped with said first and second annular end sections being

contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform said metallic seal due to torsional stress of said metallic seal, said first and second annular end sections and said annular center section being arranged to form an S-shaped cross sectional profile with said first and second annular sealing surfaces being located closer to midpoints of said first and second convexly curved surfaces than to said first and second free ends, respectively.

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22. (Currently amended) The A metallic seal according to claim 20, wherein comprising:

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a first annular end section having a first annular sealing surface facing in a first direction and lying in a first contact plane to contact a first member for creating a first annular sealing dam therebetween, said first annular sealing surface being formed on a first convexly curved surface at a location that is spaced from a first free end of said first annular end section;

a second annular end section having a second annular sealing surface facing in a second direction that is opposite to said first direction, and lying in a second contact plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween, said second annular sealing surface being formed on a second convexly curved surface at a location that is spaced from a second free end of said second annular end section; and

an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said annular center section has having a slope of about 45° with respect to said center longitudinal axis, said annular center section being frustoconically shaped with said first and second annular end sections being contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform said metallic seal due to torsional stress of said metallic seal, said first and second annular end sections and said annular center section being arranged to form an S-shaped cross sectional profile with said first and second annular sealing surfaces being located closer to midpoints of said first and second convexly curved surfaces than to said first and second free ends, respectively.

23. (Currently amended) ~~The A~~ metallic seal according to claim 20, wherein  
comprising:

a first annular end section having a first annular sealing surface facing in a first  
direction and lying in a first contact plane to contact a first member for creating a first  
annular sealing dam therebetween, said first annular sealing surface being formed on a first  
convexly curved surface at a location that is spaced from a first free end of said first annular  
end section;

a second annular end section having a second annular sealing surface facing in a  
second direction that is opposite to said first direction, and lying in a second contact plane  
that is substantially parallel to said first contact plane to contact a second member for creating  
a second annular sealing dam therebetween, said second annular sealing surface being formed  
on a second convexly curved surface at a location that is spaced from a second free end of  
said second annular end section; and

an annular center section extending between said first and second annular end sections  
to form a ring having a central passageway with a center longitudinal axis, said annular center  
section being frustoconically shaped with said first and second annular end sections being  
contiguously arranged at opposite ends of said annular center section such that sealing loads  
applied substantially perpendicularly on said first and second annular sealing surfaces  
primarily deform said metallic seal due to torsional stress of said metallic seal, said first and  
second annular end sections and said annular center section being arranged to form an S-  
shaped cross sectional profile with said first and second annular sealing surfaces being  
located closer to midpoints of said first and second convexly curved surfaces than to said first  
and second free ends, respectively,

said first and second sealing surfaces are being spaced apart by a first distance  
measured parallel to said center longitudinal axis that is substantially equal to a second  
distance measured perpendicular to said center longitudinal axis between said first and  
second sealing surfaces.